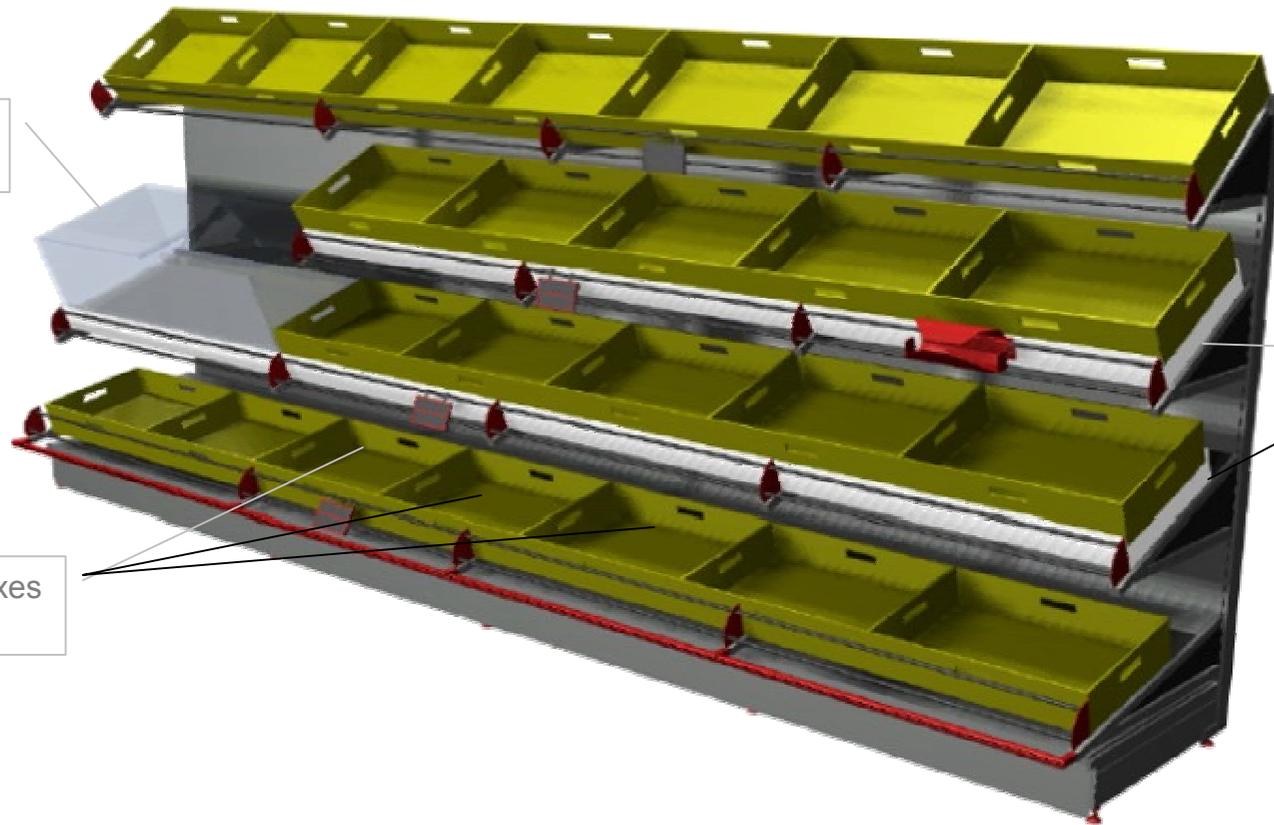


# Fruits and Vegetables at POS

Product overview – a full and final concept, fits in every shelf and department



Convenience Showcase < 6°C

Cooling Cassette 1 and 2

Presentation boxes

## Fruits and Vegetables at POS

Product overview – a full and final concept, fits in every shelf and department



Convenience  
Showcase < 6°C

Cooling Cassette  
1 and 2

## Cooling fruits and vegetables at POS – A must with many aspects We offer a complete solution

As a specialist in cooling technology and with our special experience in handling fruits and vegetables we are permanently faced with prolonging the preservation of food by cooling. There are legal provisions for the most part of foodstuff - *but there are no such provisions for fruits and vegetables.*

Working with fruit- and vegetable departments our business partners drew our attention to the tremendous damage that is caused by the waste of fruits and vegetables. But yet those products are most important for sales, profits- and for the image. Many efforts have been made to prolong the preservation of fruits and vegetables by cooling and external humidification, but up to now the market refused all of them as they are not suitable whether partly nor at all.

In co-operation Specialists in this subject and by contribution of our own competence in fruits and vegetables we developed a complete Presentation- and coolingsystem, which forms optimal conditions for the products.

Tests for a term of several months proved outstanding results in freshness, preservation and amortization.

In the year 2001 several testmarkets have been equipped, to examine the following parameters:

- Prolongation of preservation by lowering the temperature up to 10°C below ambient temperature
- Visual freshness – no fruitflies
- Integration of the convenience products into the fruit- and vegetable shelf
- Hygienic, efficient, and optical high quality presentation of the goods using black trays
- decrease of waste
- Improvement of image by keeping freshness
- Decrease of costs for logistics
- Increase of profits

The results exceeded all expectations according waste decrease up to 40%.

There is an increase of air moisture of up to 20% around the cooling cassette – so there is no need for additional humidification. The entire engineering facility is installed directly at the shelf only connected with a refrigerant- and electric supply. The big advantage: The cooling system can be retrofitted everytime and with neglectible expenditure in existing fruit and vegetable shelves; accurate to size Production is a matter of course. All products can be leased.

## Cooling fruits and vegetables at POS – Benefits overview

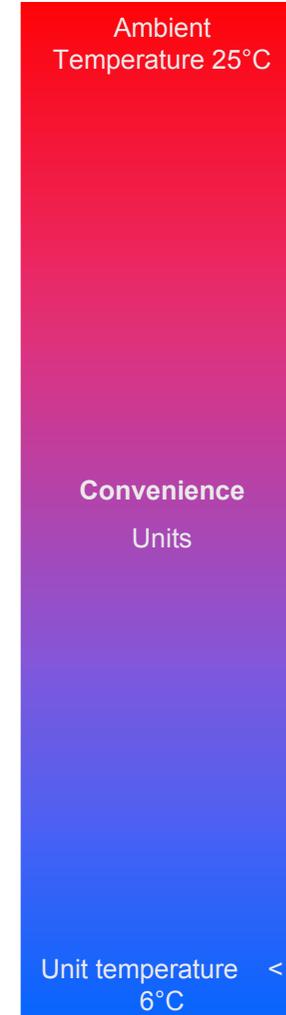
- **Reduction of loss;** the permanent cooling keeps the product's central temperature more than 10°C below ambient temperature –that improves the good's condition substantially !  
  
Larger lowering of temperature causes frost damages – by the additional use of circulating air the goods dry out more rapidly.
- **Sales promotion;** the shelf can be completely assorted – even for the last customer. By covering with a solid aircushion foil the goods remain in the shelf overnight!  
  
Saving time is an additional effect on this handling.
- **Overall view;** the existing store fittings and the harmonized general view will be kept!
- **Low operating costs**
- **Insignificant maintenance ;** ~ 10 minutes per Month done by store's staff
- **It is possible to combine two cassettes with one supporting cooling unit.** You can get the biggest variant an area of 10 running metres. length and 1,25 metres depth; adequate for e.g. 50 big Ifco Boxes.
- **Convenience cases** show the goods, where the consumer expects them: at the fruit and vegetable department; in the fruit and vegetable shelf.
- **Black trays** made from have positive visual effects on fruits and vegetables and produce a buying impulse.
- **Special sizes are available** individual solutions for nearly every shelf.

# Cooling fruit and vegetables at POS

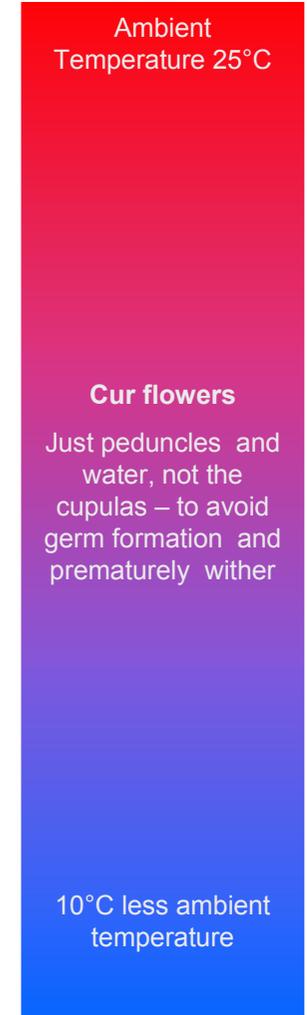
## Products overview – Needs of products



## Convenience



## Cut Flowers



MK Mobile Kühleinheiten GmbH - Stettiner Straße 7 - D 33106 Paderborn - Phone: 0049 (0) 5251 540 1494 - Fax: 0049 (0) 5251 540 1498  
www.mobile-kuehleinheiten.de - info@mobile-kuehleinheiten.de Amtsgericht Paderborn HRB 4071 - Geschäftsführer Mario Voss  
Produkte zum Patent angemeldet DBGM 10043997.7 / 102004043622.3 / PCT/DE2005/001396  
We only trade on base of our terms and conditions; placed and viewable in German on our websites.

## Cooling fruits and vegetables at POS

**Products overview – the Cooling cassette – retrofitable for every display cabinet**  
**Special feature for cooling cassettes: Mobile Fruit Presenter**



Adjustable – on wheels mobil – Cooling area 1200 x 1210 mm (B/T) – Aggregat Mini Plus - Drainage.

Optional different Side Covers!



## Cooling fruits and vegetables at POS

**Products overview – the Cooling cassette – retrofitable for every display cabinet**  
**Special feature for cooling cassettes: Crushed Ice Stairs in Stainless Steel**



# Cooling fresh smoked sausage POS

Products overview – the Cooling cassette – retrofitable for every display cabinet



Exsample:

- 1100 x 1000 x 100 mm
- Compressor „Mini small“  
with Thermostat 10°C – 18°C
- V4A Stainless Steel Surface

# Cooling fruits and vegetables at POS

Products overview – the Cooling cassette – retrofitable for every display cabinet



8 units - Finland



2 units - France



2 units - Finland



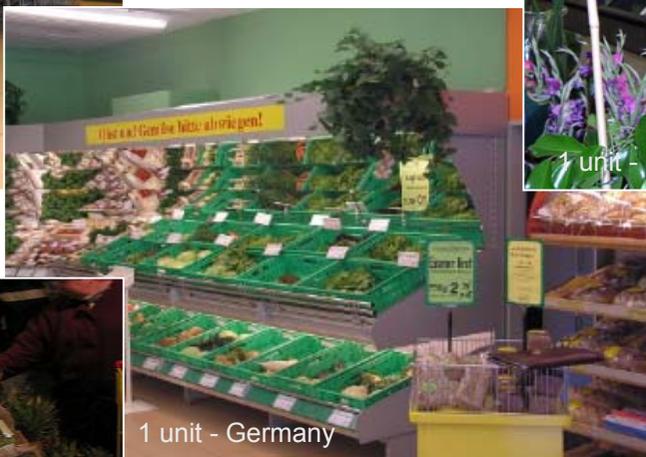
5 units- Swiss



2 Einheiten - Deutschland

# Cooling fruits and vegetables at POS

Products overview – the Cooling cassette – retrofitable for every display cabinet



# Cooling fruits and vegetables at POS

## Products overview – the cooling cassette – individual solutions



# Cooling fruits and vegetables at POS

## Products overview – The cooling cassette – individual solutions



## Cooling food at Catering

Products overview – The cooling cassette – individual solutions – THE „**PROMOBIL**“



- Piaggio APE (small Diesel Truck with 8 KW)
- Usable in 20 Minutes!
- with 2000 x 600 mm Cooling Unit (Cassette),
- Juicomat,
- Rainprotection,
- different Equipment possible,
- Sales assembly is load (not adjusted with truck)!

## Cooling food at Catering

### Products overview – The cooling cassette – individual solutions



Exsample:

- 2000 x 850 x 100 mm
- Aggregat „Mini“
- Timer
- Stainless Steel Surface
- Tubes 2 x 3 m
- Usable in 20 minutes!

# Cooling fruits and vegetables at POS

## Products overview – special solutions



Circulating air – 3 Europalets



Circulating air – 3 Europalets



Circulating air – 3 Europalets



Silent cooling 8 wheelcontainer



Silent cooling – 6 wheelcont...



Silent cooling 8 Europalets



Silent cooling 6 Europalets

# Cooling fruits and vegetables at POS

## Products overview – The cooling cassette – Ratings

### Measurements and weights:

Cooler**	W/D/H(cm)	Weight	LA	Refrigerating Capacity	Operating Costs
Mini Plus	32/50/42	38 Kg	280 W	418 W	€ 0,30 / Day*
Medi	32/66/43	48 Kg	422 W	814 W	€ 0,45 / Day*
Maxi	37/70/48	67 Kg	650 W	1105 W	€ 0,70 / Day*
Maxi plus	75/40/55	99 Kg	710 W	1511 W	€ 0,83 / Day*

Maintenance through store staff: Water gauge and cleaning the compressor!

•Maximum expenses at 10 hrs. running      \*\* 220 Volt / 50 Hz / filled with water

Refrigerant for supporting cooling unit: R134 – all supporting cooling units are CE – certificated



# Cooling fruits and vegetables at POS

## Products overview – The cooling cassette – Ratings

Cassette:	Dead Weight empty:	25 Kg/m <sup>2</sup>
	Dead weight full	28 kg/m <sup>2</sup>
	Loading Capacity:	80 Kg/m <sup>2</sup>
	Foil surface:	PE – harmless for food – green
	Aluminium surface:	High-grade Aluminium – harmless for fruit
	Special Steel surface	V4A Steel – harmless for food
	Cooling plate:	PP – harmless for food
	Cassette's material:	10mm Integral foam
	Behaviour in fire:	B1, B2
	Total height of the cassette:	100 mm
	Height Cooling area:	60 mm
	Height Cooling area "Flat":	80 mm
	Available measurements:	from 2 m to 5 m length and from 0,42 m to 1,25 m width
	Available accessories:	Special Steel (A4) surface up to 2,5m cassettes. High Grade Aluminium Surface for all measures. Condensation drainage.

The cold of the cooling plate is generated by ordinary tap water (no refrigerant in reach of the food). The whole cooling cassette consists of synthetic material! The Cooling Cassette is a retrofit kit for the Fruveg Department and it serves the purpose of keeping the cold chain at the point of sale (within the presentation of the goods). For the long term storage of fruit we suggest the usage of cooling rooms.

Cooling Cassettes are "Open Cooling Systems". Effects and efficiency depend on parameters such as source of heat, temperature of the incoming goods, and frequency of sales. For the long term storage of Food we advise to use cooling cells.

# Cooling fruits and vegetables at POS

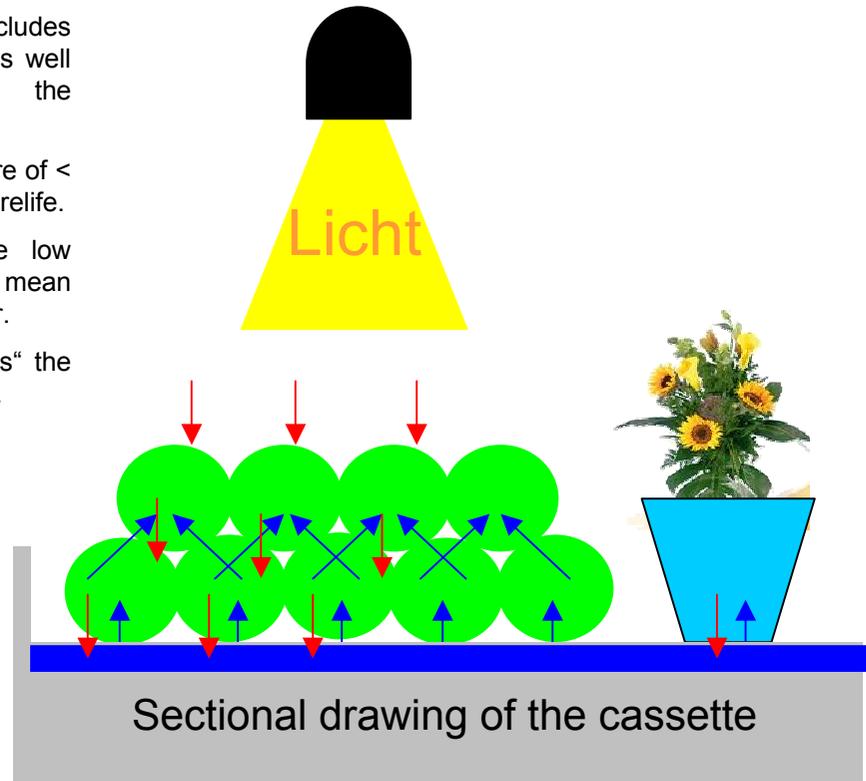
## Products overview – The cooling cassette – reduced graphic representation of the cooling principle

Working with contact cooling includes the contact with the plate itself as well as the radiating cold and the conductivity of cold of the goods.

Maintaining the central temperature of < 10°C is essential for the goods storelife.

The determining factor for the low current consumption is the mean release of cold into the ambient air.

The goods presentation „insulates“ the cooling area and absorbs the cold.



# Cooling fruits and vegetables at POS

## Products overview – The cooling cassette – Operational evidence

The left side shows the cucumbers onto the contact cooling plate

Central temperature and cooling plate's temperature are log-booked.

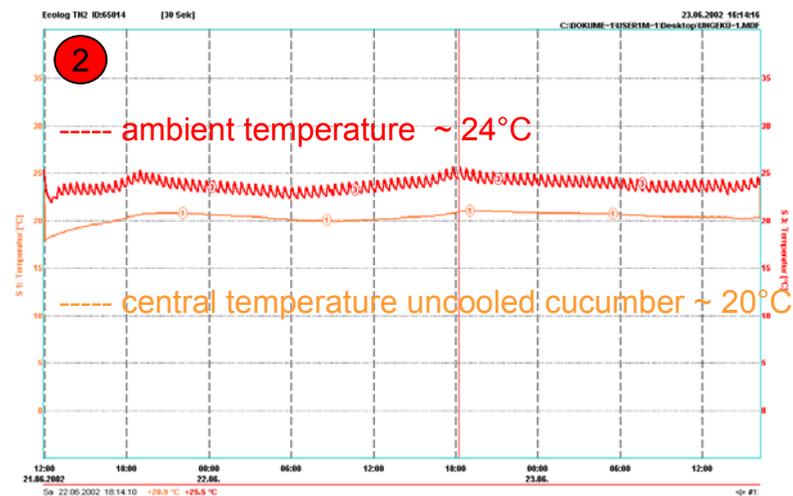
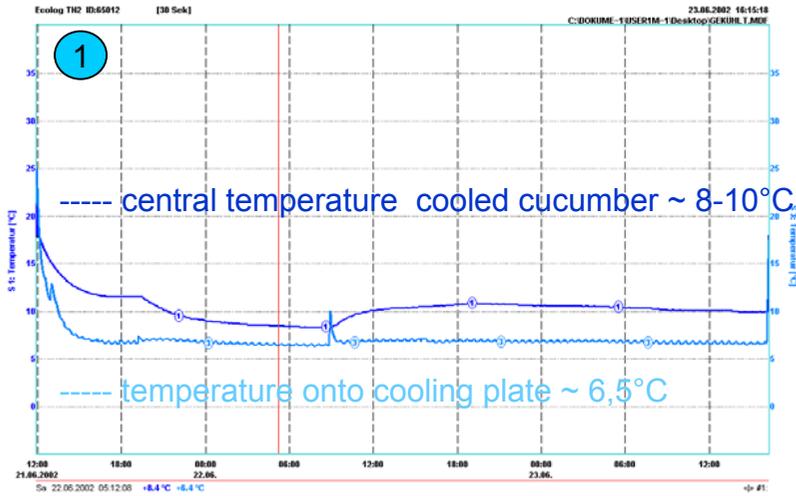
1



2

The right side shows the cucumbers onto a wooden board.

Central temperature and ambient temperature are log-booked.



## Cooling fruits and vegetables at POS

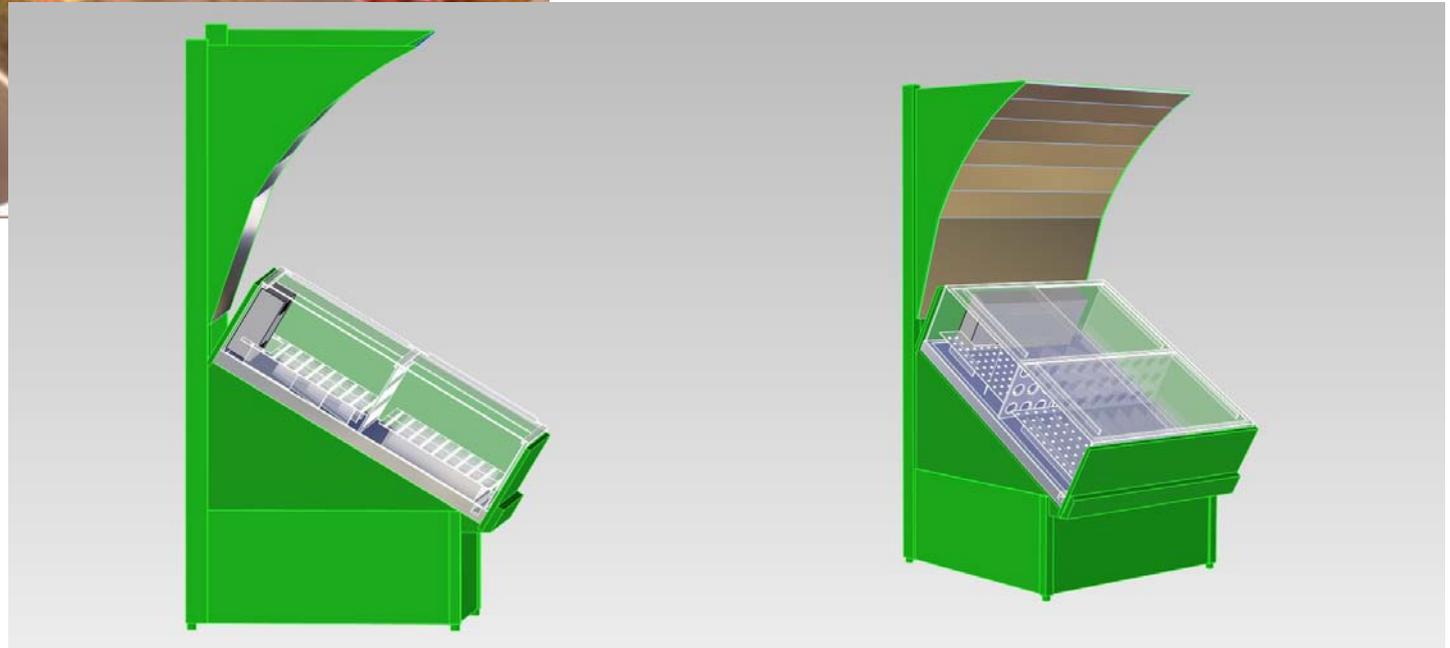
### Product overview – Convenience show case – Function and fittings



The Convenience show case has been developed for the use in the fruit- and vegetable shelf. Fitted to a section of the cooling plate and in a serial connection with the cooling aggregate a permanent temperature of less than 6° remains in the show case within very short time. Declines of up to 30° have been considered.

Due to the transparency of the show case an unrestrained view on the goods is possible.

The placement in FruVeg-shelf shows assortment as well as competence and offers a maximum overview to the consumer.



## Cooling fruits and vegetables at POS

### Products overview – Convenience show case



## Cooling fruits and vegetables at POS

Products overview – Tray system – shows the commodity – not the packing up



# Cooling fruits and vegetables at POS

## Products overview – Tray system

### Fruits and vegetables



OUR UNMATCHED UNIQUE WEAVE SYSTEM MAXIMIZES VENTILATION AND DRAINAGE. Air circulates freely for maximum efficiency. Great for wet cases for maximum refrigeration efficiencies. Great for dry tables to circulate air to increase shelf life to keep inventory fresher. Reduces costly rot and mildew. The Trays are easy to clean and rotate. Water from misting drains quickly. Not to use for staple. Products are handmade and can be different in material strength and measure.

## Cooling fruits and vegetables at POS

### Produkt overview – Tray System

#### Cheese – beef and meat - bread

Art no: RT199  
Measurements (LxDxH) **500 x 400 x 75 mm**



Art no: RT209  
Measurements (LxDxH) **400 x 400 x 12,5 mm**



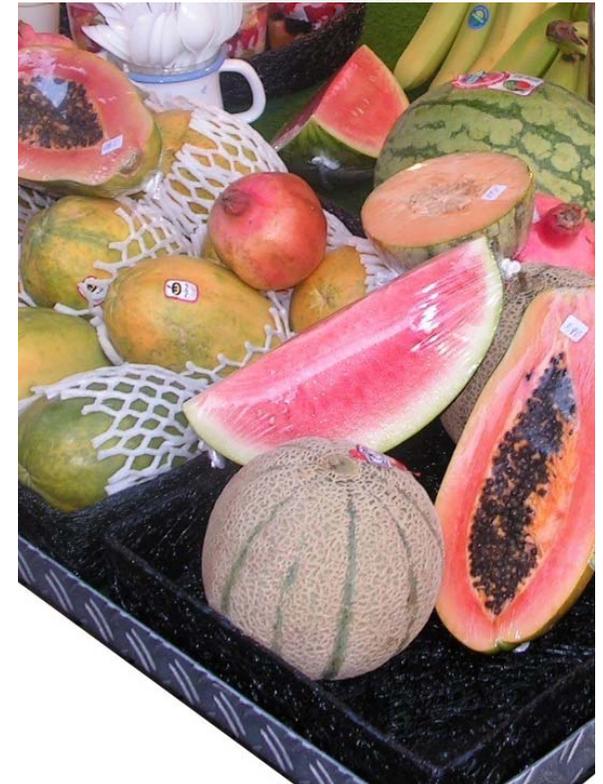
Art no: RT181  
Measurements (LxDxH) **400 x 600 x 75 mm**



Art no: RT182  
Measurements (LxDxH) **400 x 300 x 75 mm**



Art no: OT310  
Measurements (DxH) **175 x 200 mm**



## Cooling fruits and vegetables at POS

### Products overview – Tray system

#### Cheese – beef and meat - bread

Art no: RT207  
Measurements (LxDxH) **260 x 200 x 75 mm**

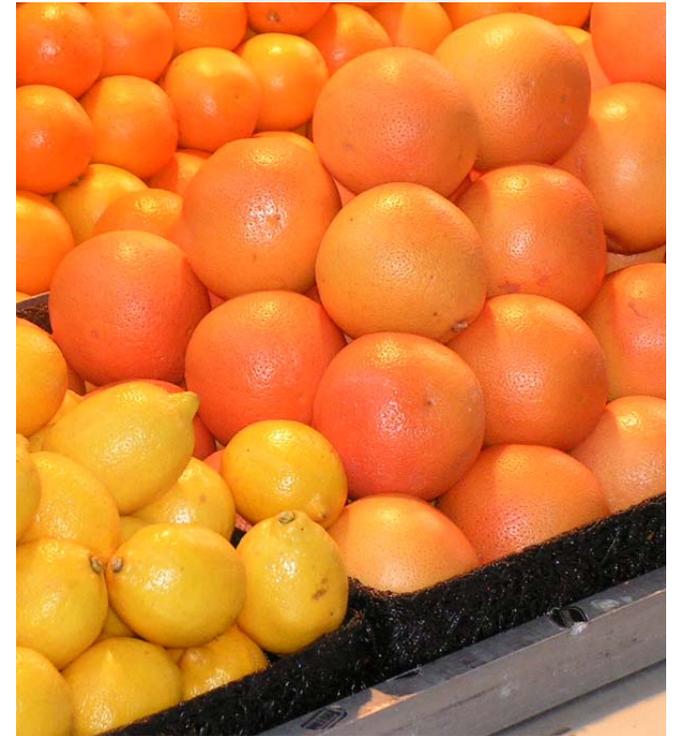
Art no: RT303  
Measurements (LxDxH) **400 x 300 x 75 mm**

Art no: RT208  
Measurements (LxDxH) **450 x 400 x 75 mm**

Art no: RT436  
Measurements (LxDxH) **600 x 400 x 150 mm**

Art no: RT189  
Measurements (LxDxH) **500 x 300 x 75 mm**

Art no: RT193  
Measurements (LxDxH) **300 x 300 x 75 mm**



## Cooling fruits and vegetables at POS

### Products overview – Tray System

#### Cheese – beef and meat - bread

Art no: OT305  
Measurements (LxDxH) **500 x 300 x 50 x 30 mm**  
Oval Boat Shape



Art no: RT310a  
Measurements (DxH) **175 x 200 mm**



Art no: OT300  
Measurements (DxDxH) **300 x 100 x 200 mm**



Art no: RV727  
Measurements (LxDxH) **850 x 300 x 200 mm**



Art no: RV718  
Measurements (LxDxH) **1200 x 400 x 200 mm**



# Cooling fruits and vegetables at POS

## Internal test of a trading group (120 branches) in the year 2005

### 1.0. Parameter cooling unit

Test of a shelf with mit Cooling cassette In two different stores		
Size of the Cooling cassette	4600 x 1230 mm suitable for 22 Ifco-boxes 600 x 400	High-grade aluminium surface, drainage and nightcovering
Aggregate Medi:	LA: 422 Watt – refrigerating capacity 814 Watt	
Shelf's angle of inclination:	20°	
Placement	Store 1 wall shelf Markt 2 central placement	
Placement aggregate	Underneath the shelf / central placement	
Placement drainage:	Covered case underneath the shelf / central placement	
Duration of testing	30 days each	
Running time	Mo. - Sa. continously	Shelfes have been cleared up and cleaned on Saturday nights. Controlling through Timer.
Departments involved:	- Store management and F&V staff - Technical management (Head office) - Management F&V (Head office) - Management Shopfitting	

## Cooling fruits and vegetables at POS

**Internal Cooling cassette test of a market chain (120 branches) done in the year 2005**

### 1.1. Parameter products to be tested

<p>Products to test:</p> <ul style="list-style-type: none"> <li>-</li> </ul>	<ul style="list-style-type: none"> <li>- sweet pepper red, yellow, green</li> <li>- Peperoni red, green</li> <li>- Head lettuce</li> <li>- Lolo Rosso</li> <li>- Battavian lettuce</li> <li>- Iceberg lettuce</li> <li>- Ruccula</li> <li>- Cucumbers</li> <li>- Witloof chicory packed</li> </ul>	
<p>Testbatches:</p>	<p>All goods have been presented chilled and non-chilled and have been optically compared.</p>	

# Cooling fruits and vegetables at POS

## Internal cooling cassette test of a market chain (120 branches) done in the year in 2005

### 1.2. Summary of advantages/disadvantages on closing the test

<p>Advantages / Disadvantages In practise</p>	<ul style="list-style-type: none"> <li>- Proper cooling of Lowest layer</li> <li>- Improved cooling of pieces and open goods without packing up</li> <li>- Saving of time in the morning because of refilling in the evening</li> <li>- Optimal presentation of goods for evening customers.</li> <li>- Little maintenance.</li> <li>- Superficial differences are visible as opposed to not cooled goods (goods look more fresh and keep the freshness longer)</li> <li>- Positive customer's response and improved Image.</li> <li>- High efficiency during meager customer attendance ( days of low sales).</li> <li>- Insignificant energy consumption (approx. 70% of power draw)</li> <li>- Cooling cassette available in various sizes (flexible applications / Supply of all markets in spite of different shelf sizes).</li> <li>- No need of clearing the shelves in the evening.</li> <li>- Optimal sales preparation</li> </ul>	<ul style="list-style-type: none"> <li>- Less cooling of upper layers.</li> <li>- Proper flow temperature (thermostat aggregate) has to be found out; should not be too cold.</li> <li>- Wrapped goods in the upper layers are not cooled properly</li> <li>- Time spent in the evenings caused by refilling.</li> <li>- Optimal efficiency by using Ifco or similar containers.</li> <li>- Intermediate layers from card board reduce the cooling effect.</li> <li>- On good sales days only little advantages</li> <li>- Especially suitable for leaf salad, kinds of vegetables, soft fruit and for sensitive goods, goods that stand in need of cooling and goods there not sold very fast. To provide the cooling system accordingly basic principles in presentation have to be done over again whether in unit construction or single presentation modules.</li> </ul>
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## Cooling fruits and vegetables at POS

### Internal cooling cassette test of a market chain (120 branches) done in the year in 2005 1.3. Analysis of the optical review of quality (market I)

Daily optical review of quality <b>Market 1</b> / cooled not cooled mornings/evenings (period 3 weeks)						
Realization: The whole staff F & V criticized the goods with a point system from 1-4 (1=saleable; 4=optimal); carried out by F & V consultant. <b>Maximum score to achieve: 68 .</b>						
Product	Achieved points morning uncooled	Achieved points morning cooled	Difference ungcooled	Achieved points evening uncooled	Achieved points evening cooled	Difference uncooled
Sweet Pepper yellow	53	56	+3	44	54	+10
Sweet Pepper green	51	56	+5	47	53	+6
Sweet Pepper red	48	60	+12	46	59	+13
Hot pepper	54	51	-3	48	52	+4
Head lettuce	49	61	+12	41	62	+21
Lolo Rosso	48	56	+8	34	56	+22
Iceberg lettuce	48	57	+9	42	56	+14
Witloof Chicory	45	61	+16	41	57	+16
Cucumbers	65	63	+2	52	61	+11
Ruccula	54	55	+1	41	52	+11
Batavian lettuce	49	58	+9	46	56	+10

## Cooling fruits and vegetables at POS

Internal Cooling cassette test of a market chain (120 branches) done in the year 2005

### 1.3. Analysis of the optical review of quality (market II)

Daily optical review of quality <b>Markt II</b> / cooled not cooled mornings/evenings (period 3 weeks)						
Realization: The whole staff F&VI criticized the goods with a point system from 1-4 (1=saleable; 4=optimal); carried out by F&V consultant. <b>Maximum score to achieve: 68.</b>						
Product	Achieved points morning uncooled	Achieved points Cooled in the morning	Difference uncooled	Achieved points uncooled in the evening	Achieved points cooled in the evening	Difference uncooled
Sweet pepper Yellow	53	55	+2	44	52	+8
Sweet pepper green	51	63	+12	47	57	+10
Sweet pepper red	48	60	+12	46	51	+5
Hot pepper	54	56	+2	48	52	+4
Head lettuce	49	55	+6	41	48	+7
Lolo Rosso	48	48	-	34	45	+11
Iceberg lettuce	48	49	+1	42	44	+2
Witloof chicory	45	53	+8	41	47	+6
Cucumber	65	54	-11	52	56	+4
Batavian lettuce	49	52	+3	46	50	+4

# Cooling fruits and vegetables at POS

## Internal Cooling cassette test of a maket chain (120 branches) done in the year 2005

### 1.4. Reading the central temperatures of the goods.

Reading central temperatures <b>solitary in the morning</b>			
With regard to:			
		- Storage temperature (not cooled)	18°C
		- Outdoor temperature	17°C
		- temperature within the market	22°C
		- Atmospheric moisture in the cooled area gainst ambient value	+ 15%
Product	Lowest Layer	Top Layer	uncooled
Iceberg lettuce	8,4°C	15,9°C	21,8°C
Cucumbers	9,3°C	11,9°C	19,3°C
Sweet pepper red	11,7°C	15,2°C	19,4°C
Average	9,8°C	14,3°C	20,1°C
Reading central temperatures <b>solitary in the evening</b>			
With regard to			
		- Storage temperature (not cooled)	24°C
		- Outdoor temperature	31°C
		- Temperature within the market	26°C
		- Incident light radiation by sodium discharge lamp up to 3500 lux	
		- Atmospheric moisture in the cooled area against ambient value	+12%
Product	lowest Layer	Top Layer	uncooled
Iceberg lettuce	14,1°C	15,2°C	23,8°C
Cucumbers	11,4°C	16,1°C	22,8°C
Sweet pepper red	12,9°C	17,1°C	23,8°C
WitloofChicory	11,5°C	19,0°C	23°C
Average	12,4°C	16,8°C	22,8°C

# Cooling fruits and vegetables at POS

## Internal Cooling cassette test of a market chain (120 branches) carried out in 2005 2.0. Development of sales and wastage

Result of measurements: The lowest layer of goods in the shelf is cooled excellent according to the demands of von F&V. The upper layers cooling is less effective. The Center temperatures from the lowest to the top layer differ by approx. 4-6°C. Compared to the uncooled goods the upper layer is up to 6-8°C colder though. Reasons for this are: Influence of temperature on the goods in the storehouse, the overturn of the goods and the luminous intensity. Lowering the temperature of the cooling cassette itself the top layers cooling is improved but the bottom layers suffer from the cold. The most important thing is the optimal setting of the cooling cassette and the controlled supply. Then the optimal economic value results from the overturn of the goods and the buying behaviour of the customer.

### Analysis of the data obtained Market 1

Turnover / wastage cooled / period of 30 days summer

	Turnover cooled	Index previous year	Deflection previous year	Index of all markets	Deflection of all Markets	Index losses	Deflection previous year	Deflection of all markets
<b>Testproducts overall</b>	39.517,05	95,1	- 4,90%	94,81	+0,29%	63,44	-36,56%	-30,47%

Result: Turnover 4,9% less than previous year but 0,29% more than mean value of all markets.  
 Wastage 36,56% less than previous year; that means 30,47% less than mean value of all Markets.

### Analysis of data obtained Market 2

Turnover / wastage cooled / period of 14 days autumn

	Turnover cooled	Index previous year	Deflection previous year	Index of all markets	Deflection of all markets	Index losses	Deflection previous year	Deflection of all Markets
<b>Testproducts overall</b>	18.661,80	107,39	7,39%	109,98	-2,59%	65,2	-34,8%	-18,53%

Result: Turnover 7,39% more than previous year but 2,59% less than mean value of all markets.  
 34,8% less in waste compared to the previous year; that means 18,53% less than the average of all Markets.

# Cooling fruits and vegetables at POS

## Internal cooling cassette test of a market chain (120 branches) done in the year 2005

### 2.1. Keyfacts

#### Increasing of sales

Has there been an increase of sales with the cooled testproducts?

- According to the sales data analysis the following has been stated: There are no substantial increases in sales in the testmarkets.

#### Decrease of waste

Has there been a decrease of waste during the test period?

- According to the analysis of the waste data the following has been stated: After adjusting the cooling cassette both markets stated a decrease of waste of approx. 30% compared to the preceding year and compared to the average of all markets.

#### Time

Have there been any savings of personnel expenses during the test period?

- Packing up the goods in the evening is not as time-consuming as the removing and the packing up of the goods in the morning. For that reason both of the test markets saved the costs for approx. half a working-hour and half a man-hour per day.

#### Image

Customers reaction

- Customers reply was very positive. Customers realized that something was influenced in their liking.

Impression of the cooled goods:

- Fresh and high quality impression  
(according internal qualitycontrol).

## Cooling fruits and vegetables at POS

Internal cooling cassette test of a market chain (120 branches) done in the year 2005

### 3.0. Cost-effectiveness - analysis

Costs		
Costprice cooling unit incl. shelf and installation	7.200 Euro	
Depreciation / Year	3 Jahre	2.400,00 Euro
Capital costs / Year	12%	288,00 Euro
Costs for energy (assumptive value)	0,10 € /KwH	
Working hours / year (300 days)	7.200	
Power draw compressor incl. pump at approx. 70% running time	0,33 Kw/H	
Costs of energy per year		237,60 Euro
Total amount of costs per year		2.925,60 Euro
Yields		
Wastage reduction on tested products per day / year	15 Euro	4.500,00 Euro
Personal expenses 0,5 h / day (hourly rate 20 Euro) – day / Year	10 Euro	3.000,00 Euro
Total amount of savings per year		7.500,00 Euro